REMARKS

Claims 1-20 were presented for examination.

Claims 1-20 were rejected.

Applicants are hereby amending claims 1, 3, 14, 15, 17 and 20 to more distinctly claim their invention.

Reconsideration of this application as amended, and allowance of all pending claims, claims 1-20 as amended, are hereby respectfully requested.

Amendments to the specification

Applicants have amended the specification to place all priority claims in a single paragraph and to supply missing serial numbers. Applicants respectfully submit that no new matter is added by these amendments.

Applicants respectfully request the Examiner to acknowledge Applicants' priority claims.

Double patenting

Claims 15, 19 and 20 were provisionally rejected under the judicially-created doctrine of obviousness-type double patenting over "claims 1-12 of copending Application No. 09/853,556." The reason for the rejection is that "[t]he application differs from the claimed invention in that in that the 09/854,153 application in that the 09/853,556 application fails to specifically teach that a power adjustment is made to the low speed channels in order to compensate for dispersion in the system . . ." Applicants traverse this rejection. The current application is the 09/853,556 application; it cannot be rejected over itself. Furthermore, the current application generally concerns control channels, and not power adjustment of low speed channels in order to

compensate for dispersion in the system. Therefore, Applicants respectfully request removal of this provisional rejection.

Rejections in light of Bodell

Claims 1-20 were rejected variously under 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) in light of Bodell (4,768,186), sometimes in combination with Hubinette (USPN 6,289,511).

The claims generally concern the transmission of a control channel between nodes of an optical fiber communications system. Applicants have amended the claims to clarify that the optical high-speed channel transmitted over the optical fiber has a particular signal structure. Specifically, each of the control channel and the low-speed channels is "allocated a different frequency band within the optical high-speed channel." In contrast, Bodell uses frequency modulation before converting to optical form and, therefore, Bodell's different channels do not occupy different frequency bands within the optical signal.

In more detail, claim 1 recites

> "frequency division multiplexing the control channel with a plurality of electrical low-speed channels to form an electrical high-speed channel;
> converting the electrical high-speed channel from electrical to optical form to form an optical high-speed channel, wherein each of the control channel and the electrical low-speed channels is allocated a different frequency band within the optical high-speed channel"

FIG. 3C in the Application shows an example frequency spectrum of such an optical high-speed channel (but with the control channel not shown). As described in the corresponding text, each of the frequency bands 350A-350N corresponds to a low-speed electrical channel and "[i]n a preferred embodiment, a frequency band located between the sidebands 350 (see FIG. 3C) and

the optical carrier 340 is allocated for control and/or administrative purposes (e.g., for downloading software updates)" p. 15, last paragraph.

Bodell's system does not produce the claimed signal structure. It is suggested that the MUXes 2-6 in Bodell combine signals in a manner so that different signals occupy different frequency bands. Even assuming for the moment that this is the case, these different frequency bands are not in the optical signal transmitted from node to node. Rather, an FM modulator 7 in Bodell frequency modulates the signal with the different frequency bands, which typically generates overlapping harmonics, thus destroying the signal structure of different frequency bands. After the frequency modulation, each incoming signal does not occupy a different frequency band. In fact, Bodell applies preemphasis in part to reduce the unwanted effects of the harmonics. Thus, Bodell does not disclose an optical fiber communications system in which "each of the control channel and the electrical low-speed channels is allocated a different frequency band within the optical high-speed channel," as recited in claim 1.

Furthermore, the "overhead information" in Bodell also is not frequency division multiplexed with the electrical low-speed channels, as is recited in claim 1. The pilot tone and telemetry signals are pointed to as examples of "overhead information" in Bodell and the original analog signals are pointed to as examples of "electrical low-speed channels." The MUXes 2-6 allegedly frequency division multiplex the electrical low-speed channels. Regardless of whether this is the case, they do not also frequency division multiplex the control channel (which contains the overhead information) with the electrical low-speed channels. As shown in Bodell's Fig. 4, Bodell's "control channel" is combined with his "electrical low-speed channels" after frequency modulation of the electrical low-speed channels. Therefore, Bodell's "control channel" is not frequency division multiplexed with his "electrical low-speed channels," as is recited in claim 1.

Hubinette is relied on for a different claim limitation and, regardless of whether Hubinette shows this limitation or can be properly combined with Bodell, Hubinette does not overcome these fundamental deficiencies in Bodell.

Therefore, Applicants respectfully submit that claim 1 and its dependent claims are patentable over the cited references for these reasons. The remaining claims have similar limitations and Applicants respectfully submit that they are patentable over the cited references for the same reasons.

In addition, Applicants have also amended the claims to clarify that the control channel carries overhead information that includes digital data, whereas Bodell's "overhead information" all appear to be analog signals. Specifically, claim 1 recites "the overhead information comprising digital data." As an example, "in one embodiment, the control channel 326 has a spectral bandwidth of 26 MHz and utilizes alternate mark inversion/frequency-shift keying (AMI/FSK) modulation with a peak frequency deviation of 9 MHz. Data is transmitted at a rate of 2.048 Mbps using the E1 protocol" p. 16, first paragraph.

In contrast, pilot tone, laser temperature, laser bias and sensors are pointed to as examples of Bodell's "overhead information." However, in Fig. 4 and the corresponding text, Bodell describes each of these quantities as either analog (e.g., pilot tone and thermistor output for monitoring laser temperature) or not at all. Applicants could find no suggestion of the use of digital data in the control channel, as is recited in claim 1.

Therefore, Applicants respectfully submit that the pending claims (which all have similar limitations) are also patentable over the cited references for this separate reason.

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Closing

Applicants believe that the application is in condition for allowance of all claims herein, claims 1-20 as amended, and therefore an early Notice of Allowance is respectfully requested. If the Examiner believes that for any reason direct contact with Applicants' attorney would help advance the prosecution of this case to finality, the Examiner is invited to telephone the undersigned at the number given below.

Respectfully submitted,

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By: _____

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